

Trillium virginianum (Fern.) Reed, comb. nov.,
in Maryland, Virginia, West Virginia and North Carolina

Clyde F. Reed

From the genesis of Trillium pusillum var. virginianum, described by Fernald in 1943, there have been considerable doubts that the plants involved were really closely related to Trillium pusillum Michaux. Fernald had said (l.c., p. 396) 'that it is neither T. lanceolatum (a name he had applied to it in *Rhodora* 42: 445, 1940) nor typical T. pusillum'. In the Flora of Central Eastern United States. I am considering it a species.

Trillium virginianum (Fernald) Reed, comb. nov. Based on Trillium pusillum var. virginianum Fernald, *Rhodora* 45: 397, t. 773, f. 1-2. 1943.

Michaux (1803) had described T. pusillum as having the leaves sessile, the flowers peduncled and erect, the sepals scarcely longer than the pale flesh-colored petals. Fernald (1943) illustrated T. pusillum with a specimen of Michaux, marked '35 miles from Charleston, environs Gaillard Road' (l.c., pl. 772, f. 1), along with two other specimens from about the same locality, Pinopolis in Berkeley County, from pine-lands on the Coastal Plain of South Carolina. The flowers in both Michaux's specimen and the two from Pinopolis have long-peduncled flowers, with petals 1.8-2.5 cm. long and 4-9 mm. broad, about equaling or longer than the sepals, and the anthers 5-6 mm. long, either longer or shorter than their filaments (this a very weak character at the best). This description fits plants from western North Carolina, other areas of South Carolina, Georgia, Alabama, Mississippi and Tennessee. In some of these areas the flowers are darker pink or deep rose-colored. In western North Carolina, this species is in low areas or alluvial areas, even at 2700 ft. elevation. In Georgia, Alabama and Tennessee, the plants are in alluvial areas at fairly high elevations of the Piedmont or Uplands. In Alabama it is along Paint Rock River, east of Huntsville.

Buckley (1861) had named Trillium texanum from Panola County, Texas. There plants have flowers on erect peduncles 2.5-4.5 cm. long, the sepals longer than the petals, the petals white becoming pink or reddish with age, 1.5-3 cm. long and 7-14 mm. broad, the stamens 10-14 mm. long and the anthers slightly longer than the filaments. However, the bracts have upper epidermal stomates, giving a somewhat farinose appearance. More recently, it has been found in Cass and Houston Counties (Correll & Johnson, p. 408, 1970). Index Kewensis had equated T. texanum with T. pusillum. Correll and Johnson considered it a species. I am considering it as a variety.

Trillium pusillum var. texanum (Buckl.) Reed, comb. nov. Based on T. texanum Buckley, Proc. Acad. Sci. Phila. 1860: 443. 1861.

Palmer & Steyermark (1935) described Trillium ozarkanum from Missouri. These plants are somewhat taller than typical T. pusillum, the flowers are erect and long-peduncled, with broad sepals, and the petals longer and broader than those in typical T. pusillum, and lie flat-horizantal, spreading or arch-recurved, but not erect or arching, white fading to pink or rose-purple. Leaves are strongly 5-veined instead of being 3-veined. Besides several localities in south-central and southwestern Missouri, this plant is known in Arkansas and central to south-central Kentucky. Rafinesque (1840) had listed T. pusillum from West Kentucky; his west Kentucky could well have been anywhere west of Lexington and could well have represented plants from Casey County, which I now have at hand. Rafinesque by referring to 'near last', which species had leaves sessile, was not confusing his specimen with T. recurvatum which he had already mentioned in relation to T. unguiculatum Raf. (1840, p. 132) = T. recurvatum Beck (Freeman, 1975, p. 6). Later, Steyermark (1960) considered T. ozarkanum a variety of T. pusillum, which arrangement is quite reasonable and I accept T. pusillum var. ozarkanum (Palmer & Steyermark) Steyermark.

Trillium virginianum (Fern.) Reed is a distinct species: the leaves are sessile and may vary from linear to lanceolate or ovate, the flowers sessile or subsessile on very short peduncles (1-4 mm. long), the petals only 1.2-2 cm. long and 3-5 mm. broad, white, or white fading to pink or rose, and the anthers 3-8 mm. long, either longer or shorter than their filaments. It grows in swampy woods, rich loamy woods in damp areas or in upland thickets or open areas, from near sea-level on the Delmarva Peninsula in Maryland and Virginia to piedmont areas in Virginia and eastern North Carolina to the eastern edge of the Appalachian Mountains.

Many Coastal Plain species in Central Eastern United States have montane localities, and vice versa. Therefore, it is not out of place for T. virginianum to be found on the Coastal Plain in Maryland, Virginia and eastern North Carolina, on the Piedmont in northeastern North Carolina and Virginia (along the drainage of the James River) and in the mountains of Virginia (Roanoke Co.) and West Virginia (Pendleton Co.), as reported by Gerald Roe (1978). Sarracenia purpurea is mostly Coastal Plain in its distribution in Delaware, Maryland, Virginia and North Carolina, yet it occurs in the Appalachians in West Virginia and western Maryland. Drosera rotundifolia is mainly Coastal Plain, yet it occurs at Swallow Falls (Garrett Co., Md.) and elsewhere in the Piedmont and mountains. The genera Hexastylis, Galax and Oxydendron have similar distributional patterns (Reed, 1965). Many of Fernald's species and varieties of the Blue Ridge and Appalachian areas of Virginia have turned out to be tetraploids of Coastal Plain diploid species, or vice versa. Trillium pusillum itself has Coastal Plain localities in South Carolina and montane localities in western North Carolina, Alabama and elsewhere.

On the other hand, *Trillium grandiflorum* is a Piedmont or Appalachian species; yet it is found on the Coastal Plain on the Delmarva Peninsula. Box-huckleberry is a montane species in Pennsylvania, West Virginia and Kentucky, yet it has Coastal populations in Sussex County, Delaware and Anne Arundel County, Maryland.

Actually, the area where *T. virginianum* is most common on the Delmarva Peninsula is one in which there is a very large Piedmont or montane flora, with over 100 species considered to be from those areas (and no where in between, sometimes 100 to 150 miles to the nearest population). This Piedmont-montane flora ranges from near Snow Hill (Worcester Co., Md.) south to Silva and near Accomac (Accomac Co., Va.), an area about 35 miles long and 5-8 miles wide. I have published some of this flora already.

Gerald Roe (1978) published a very fine review of the history of *T. pusillum* var. *virginianum* in Virginia, and added his new finding of it in the mountains along the Virginia-West Virginia border (Rockingham Co., Va.- Pendleton Co., W.Va.). The specimens he cited are excellent specimens of *T. virginianum* (Fern.) Reed, and he should be given full credit for having found this species in this mountain habitat. Evidently, more recently, Norlyn Bodkin (1981) and James Reveal (1981) came across the same locality and noted the plants to be a new find, which evidently is not the case in the light of Roe's published data and specimens from that locality in 1978.

The area where Roe's specimens came from, that is, south of Rt. 33 along the mountains to the south (headed toward Reddish Knob) is one of special interest to me. The country rock here is Tonoloway limestone of late Silurian Age with a contact with the underlying Wills Creek limestone. However, intrusive igneous rocks form several dikes in this region of Pendleton, Rockingham and Highland Counties. These lend for acid soils and conditions in patches. Most probably it is in these soils (not the limestone soils) where Roe's specimens came from. Harvill (1977) had indicated *T. pusillum* (sic) as being in Rockingham County, Virginia, probably based on Roe's specimens which are at Williams & Marys College Herbarium. However, it is of interest to note that Harvill did not indicate the presence of this species in Accomac County, Virginia on his maps (1977, Atlas).

Very recently, Case (1981) gave an excellent concise review of the Trilliums in eastern North America. His remarks about *T. pusillum* and *T. virginianum* substantiate my treatment of the two as separate species. However, he considered *T. ozarkanum* and *T. texanum* as separate species also, leaving the possibility for their inclusion in *T. pusillum*. I consider them both as varieties of *T. pusillum*.

Records of T. pusillum and varieties

Trillium pusillum Michaux, Fl. Bor. Amer. 1: 215. 1803.

South Carolina: Pinopolis, about 35 mi. N of Charleston, near Moncks Corner, near Michaux's type locality. April 1897. Maria P. Ravenel. (GH); Pinopolis. May, 1895. E. Peyre Porcher (GH); 35 mi. from Charleston, environs Gaillard Road. (Type). All illustrated by Fernald, Rhodora 45: pl. 772. 1943. Berkeley County. Also known in Calhoun and Dorchester Counties (Fl. Carolinas, 1968).

North Carolina: Haywood Co.: Low ground, elev. 2700 ft. May 1895. T.G.H. (US-959737); same loc., May 1898. T.G.H. (US-959738).

Alabama: Madison Co.: Butler's Bottom, along Paint Rock River, east of Huntsville, in Upper Piedmont. Flowers peduncled.

Also known in Georgia, Tennessee and Mississippi.

Trillium pusillum var. ozarkanum (Palmer & Steyermark) Steyermark, Rhodora 62: 130. 1960. Based on T. ozarkanum Palmer & Steyer.,

Arkansas: Newton Co.: On cherty soil, wooded slope of oak and hickory, at Lost Creek (or Lost Valley), about 2 mi. SW of Ponca, alt. about 1200 ft. Numerous scattered plants (fls. white to lavender, on peduncles up to 3 cm. long). April 4, 1964. Paul L. Redfearn, Jr. 14356. (SABC distribution - Reed Herb.). (Thompson, 1977, p. 75).

(Lost Valley, in the Boston Mountains, is part of the Buffalo National River Park; elevation of steep slopes within the ravine range from 11-- to 1800 feet; mesophytic forest with several Appalachian disjuncts and Ozarkian endemics; consists of numerous sedimentary rock outcrops and dry upland wooded ridges)

Kentucky: Casey Co.: Very numerous, Pricetown, Liberty Quadrangle, Osage Geological Region, elev. 1000 ft. April 29, 1962. Glenn W. Murphy 372. (Reed Herb.); Rafinesque No. 14. (petals incarnate), West Kentucky (Autikon Bot., p. 134, No. 976. 1840, as T. pusillum).

Missouri: Occurs in acid soils of shallow draws in the thin cherty-flinty soils of oak-hickory, oak-pine or oak-chestnut woodlands in southern Missouri Ozarks;; Shannon Co.: West side of Rt. 80, 2 mi. S of Birch Tree. May 3, 1947. Steyermark 64262; same loc., 1946. Bill Bauer; Lawrence Co.: Palmer; Barry Co.: 3 mi. S of Cassville, Rt. 112 on road to Roaring River State Park. April 20, 1935. Steyermark 18628 (Type loc.-MO); same loc. April 13, 1930. Cora Shoop.

Trillium pusillum var. texanum (Buckl.) Reed, comb. nov. Based on T. texanum Buckl., Proc. Acad. Sci. Phila. 1860: 443. 1861.

Texas: Panola Co.: Extremely rare in low moist woods, bogs and stream banks. (Type loc.). Also in Cass and Houston Counties.

Trillium virginianum (Fern.) Reed

Trillium virginianum (Fern.) Reed, comb. nov. Based on T. pusillum var. virginianum Fern., Rhodora 45: 397, pl. 773, f. 1-2.1943.

Maryland: Worcester Co.: Shady woods, Carey's Creek. April 26, 1935. G.F.Beaven 196. (Duke; ANSP), labeled T. pusillum Michx. subsp. IV, det. S.J.Smith, 1947; originally recorded as T. sessile; swampy woods at bases of maples, Rt. 502, 2 mi. SE of Stockton. May 30, 1955. Reed 36292 (8 specimens- all fls. sessile); Carey's Creek, 2 mi. ENE of Pocomoke City, on hummocks in Cypress forest in Pocomoke Swamp. May 4, 1947. R.R. Tatnall, G.R. Proctor & E.T. Wherry. (ANSP).

Virginia: Accomac Co.: Wet woods just NW of Silva. April 14, 1957. Reed 38636 (4 spec.); same loc. April 22, 1956. Reed 37485 (15 spec.); low wet woods bet. Horntown and Silva. April 22, 1956. Reed 37437 (9 spec.); low swampy woods. 1 mi. S of Wattsville. April 22, 1956. Reed 37448 (7 spec.), and 37447 (2 dimerous spec.); wet woods, 0.5 mi. W of Greenbackville. April 22, 1956. Reed 37460 (10 spec.), 37457 (1 dimerous), 37461 (1 tetramerous); wet maple swampy woods on hummocks just W of Silva near Mollard Mill Pond Creek. May 30, 1955. Reed 36626 (13 specimens), 36627 (1 tetramerous); swampy woods just NW of Silva. April 13, 1963. Reed 61363 (2 spec.).

Norfolk Co.: Swampy woods, Rt. 165, 2 mi. W of Great Bridge. April 16, 1963. Reed 61551 (16 spec.); Great Dismal Swamp. W of Wallaceton. April 24, 1926. Paul A. Warren 413. (GH).

Nansemond Co.: Beech-maple stand and surrounding low areas. S of Williamson Ditch. March 5, 1975. Lytton J. Musselman 4835. (NC State - 4 spec., fls. 3 sessile, 1 peduncle 0.6 mm. long).

James City Co.: Low woods 4 mi. NW of Williamsburg. May 5, 1951. F.H.Sargent. (NC State - fls 2 sessile, 2 with 2 mm. peduncles); locally abundant in headwaters of stream, Long Hill Swamp. Rt. 612. April 8, 1979. Donna M.E.Ware & Douglas E. Blackman 7321. (Wm. & M. Coll. - 2 spec., fls. sessile); same loc. April 8, 1979. Donna M.E.Ware & Stewart A.Ware 7322; Long Hill Swamp, Powhatan Creek on Centreville Road, W of Williamsburg. May 3, 1931. Mrs. W.G.Guy & Dr. Sutton (GH - sent by Paul A. Warren); locally abundant, along edge of stream in headwaters of Mill Creek, E of Mt. Pleasant Church on Ironbound Road, Williamsburg. April 8, 1979. Donna M.E.Ware & Douglas E. Blackman 7321. (UNC-CH); locally abundant on mixed deciduous wooded slopes above Long Hill Swamp, Lafayette High School Nature Trail, Williamsburg. May 1, 1976. Donna M.E.Ware 6535. (UNC-CH).

Henrico Co.: N of Westwood Golf Course, Richmond. May 8, 1931. R.F. Smart & Elmer C. Richard (U.Rich.); woodland, N of University Road, Westwood. May 8, 1931. Mary E. Bilings. (GH).

Chesterfield Co.: 'Woodlands', Winterpack. April 29, 1939. Virginia Britt & Dimples Lathum (petals maroon); April 30, 1939. Virginia Britt (petals white); April 30, 1939. Virginia Britt & Juliet Florence (petals pink). (U.Rich.). All with sessile flowers.

Dinwiddie Co.: Rich loamy woods near stream, 5 mi. E of Dinwiddie Court House. May 9, 1943. Laura H. Lippitt (Type-(GH)).

Rockingham Co.: In thickets and open areas, woods along Virginia-West Virginia State Line, on mountain, elev. 4000 ft. May 1975. Gerald F. Roe 1271 (Coll. Wm. & Mary- fls. sessile to peduncles 2 mm. long).

West Virginia: Pendleton Co.: In thickets and in open areas, along West Virginia-Virginia State line, mountains, elev. 4000 ft. May 1975. Gerald F. Roe 1270. (Coll. Wm. & Mary - fls. sessile to peduncles 2 mm. long).

North Carolina: Wake Co.: Alluvial flat, head of Yates Pond, about 5 mi. S of Raleigh. April 20, 1950. Wm. B. Fox and Dave Adams 3561 (Duke- 3 spec, fls. of peduncles 4-6 mm. long); Yates Pond, 5 mi. SW of Raleigh. April 21, 1970. Sandra K. Ittenbach 83. (N.C. Stae - 5 spec., fls. peduncled to 10 mm. long. Eastern Piedmont

Nash Co.: In low wet area, left side of Us. Rt. 264, about 2 mi. E of Middlesex. March 25, 1976. Rhodes Robinson. (N.C. State- 4 specimens, fls. all sessile).

References

- Baldwin, J.T., Jr., Bernice M. Speece and Bernard Mikula Chromosomes of Trillium pusillum var. virginianum Fern. Rhodora 51: 368. 1949.
- Beaven, G.F. and H.J. Oosting Pocomoke Swamp: A Study of a Cypress Swamp on the Eastern Shore of Maryland. Bull. Torr. Bot. Club 66: 367-389. 1939. (as T. sessile).
- Browne, E.T., Jr. Some New or Otherwise Interesting Reports of Liliaceae from the Southeastern States. Rhodora 63: 304-311. 1961.
- Herbarium and Field Notes on Kentucky Plants. I. New State Records, Rarities and a New Form. Castanea 32: 77-84. 1967.
- Case, Frederick W., Jr. Eastern American Trilliums. Part I. Bull. Amer. Rock Gard. Soc. 39: 53-67, illus. 1981; Part II, l.c., 39: 108-122, illus. 1981.

- Correll, D.S. and M.C. Johnson Manual of the Vascular Plants of Texas. Texas Research Foundation, Renner, Texas. 1970.
- Fernald, M.L. Virginian Botany Under Restrictions. The Dwarf Trillium of Southeastern Virginia. *Rhodora* 45: 364-365, 396-398, pl. 772-773. 1943.
- Gray's Manual of Botany. Eighth (Centennial Edition). D. Van Nostrand Co. (Corrected Printing, 1970). New York. 1950.
- Freeman, John D. Revision of Trillium subgenus Phyllantherum (Liliaceae). *Brittonia* 27: 1-62, illus., maps. 1975.
- Harvill, A.M., Jr., Charles E. Stevens and Donna M.E. Ware Atlas to the Flora of Virginia, I. Pteridophytes through Monocotyledons. 59 pp. Virginia Bot. Associates, Farmville, Va. 1977.
- Michaux, F.A. *Flora Boreali-Americana*, 1: 215. 1803.
- Musselman, Lytton J., D.J. Nickrent and G.F. Levy A Contribution towards a Vascular Flora of the Great Dismal Swamp. *Rhodora* 79: 240-268, 2 figs. 1977.
- Norton, J.B.S. and Russell G. Brown A Catalog of the Vascular Plants of Maryland. *Castanea* 11: 1-50. 1946. (as T. pusillum).
- Palmer, E.J. and J.A. Steyermark An Annotated Catalogue of the Flowering Plants of Missouri. *Ann. Missouri Bot. Gard.* 22: 375-759. 1935.
- Radford, A.L., H.E. Ahles and C.R. Bell Manual of the Flora of the Carolinas. Univ. North Carolina Press, Chapel Hill. 1968.
- Redmond, P.J. A Flora of Worcester County, Maryland. *Contrib. Biol. Lab. Catholic Univ. of Amer.*, No. 11. 1932.
- Reed, Clyde F. Contributions to the Flora of Maryland, 2. The genus Trillium *Castanea* 21. 145-150. 1956.
- New County Records for Botrychium matricariaefolium in Maryland and Delaware. *Amer. Fern Journ.* 46: 148-151. 1956.
- The Potomac River as the natural barrier for Oxydendron, Galax and Hexastylis. *Phytologia* 12: 313-330, maps. 1965.
- Roe, Gerald, F. Additions to the range of Trillium pusillum. *Castanea* 43: 187-191, map. 1978.
- Simmons, Chris Discovery: JMU Botanist Finds New Variety of Lily. *Daily News-Record (Harrisonburg, Va.)*, p. 17, illus. Thurs. Aug. 6, 1981.
- Steyermark, J.A. *Flora of Missouri*. Iowa State Univ. Press, Ames, Iowa. 1963.
- Tatnall, R.R. *Flora of Delaware and the Eastern Shore*. 1946.
- Thompson, Ralph L. The Vascular Flora of Lost Valley, Newton County, Arkansas. *Castanea* 42: 61-94. 1977.
- Vesey, Tom Botanists Find A New Virginia Flower. *The Washington Post - Metro*, B1, illus. Monday Aug. 3, 1981.
- Wherry, E.T. Trillium pusillum in Maryland. *Bartonia* 25: 71. 1949.